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Research note

New records of *Pteris* (Pteridaceae) from the Neotropics

Nuevos registros de *Pteris* (Pteridaceae) para el neotrópico

Alexander Francisco Rojas-Alvarado[1]✉ and José Miguel Chaves-Fallas[2]

[1]*Universidad Nacional de Costa Rica. Apartado 86-3000, Heredia, Costa Rica,*
[2]*Herbario Luis Diego Gómez, Estación Biológica Las Cruces, Organización para Estudios Tropicales. Apartado 73-8257, San Vito de Coto Brus, Puntarenas, Costa Rica.*
✉ *alfrojasa@yahoo.com*

Abstract. As a result of studies on neotropical *Pteris* L., we report new records of *Pteris albertiae* and *P. longifolia* from Costa Rica; *P. longipetiolulata* from Costa Rica, Panama, Peru, Bolivia, and Venezuela; and *P. muricatopedata* from Mexico and Guatemala. The expanded distribution range and addition of species to biodiversity lists provide relevant information about the ecology and taxonomy of the species.

Key words: distribution, ferns, Mesoamérica, Mexico, South America.

Resumen. Como resultado de los estudios en *Pteris* L. para el neotrópico, presentamos nuevos registros de *Pteris albertiae* y *P. longifolia* para Costa Rica, *P. longipetiolulata* para Costa Rica, Panamá, Perú, Bolivia y Venezuela, y *P. muricatopedata* para México y Guatemala. La ampliación de áreas de distribución y adición de especies a las listas de biodiversidad proporciona información relevante sobre la ecología y taxonomía de las especies.

Palabras clave: distribución, helechos, Mesoamérica, México, Sudamérica.

Pteris L. contains more than 300 species of pantropical distribution. In America, *Pteris* is represented by approximately 60 species and lacks a modern taxonomic revision (Arbeláez, 1996). As currently circumscribed, it is morphologically heterogeneous and probably polyphyletic; for this reason it is difficult to give characteristics that define the genus (Moran, 2012).

The genus *Pteris* is characterized by petioles with a single omega-shaped vascular bundle (the open end of the omega oriented adaxially) and linear sori on a submarginal connecting vein covered by the reflexed margin of the lamina (false indusium) (Moran, 2012).

Pteris is ubiquitous; most species occur in mature forest, but others can be found in secondary forest, clearings, or along rocky stream banks. In tropical America, species grow in wet forests, cloud forests, gallery forests, thickets, at the edge of clearings, and occasionally on cliffs (Tryon and Tryon, 1982).

New records of *Pteris* from Mexico, Central America, and other Neotropical countries contribute to the knowledge of American biodiversity, therefore, the species list of each country is increased.

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The examined specimens are deposited in the herbaria of Museo Nacional de Costa Rica, Herbario Nacional (CR); Estación Biológica Las Cruces, Herbario Luis Diego Gómez (HLDG); Instituto Nacional de Biodiversidad, Herbario (INB); Universidad Nacional Autónoma de México, Herbario Nacional de México (MEXU); Missouri Botanical Garden Herbarium (MO); Smithsonian Institution, United States National Herbarium (US); and Universidad de Costa Rica, Herbario Luis A. Fournier (USJ).

Pteris albertiae Arbeláez, Brittonia 47 (2): 178. 1995. Type: Colombia, Norte de Santander, Mun. de Ocaña, Páramos de San Pedro, 3 076-3 385 m, ca. 1 851, *Schlim 330* (holotype: K; isotypes: B, BM, P!).

Distribution. **Costa Rica** and **Colombia** at 2 700-3 385 m. Probably also in Panama at Cordillera de Talamanca. In montane forest and subpáramo in the departments of Boyacá and Norte de Santander (Arbeláez, 1995). Here we provide a new record at the same altitude from Villa Mills, Costa Rica.

Material of new distribution. **Costa Rica**. San José: Pérez Zeledón, Villa Mills, cerro de la Muerte, hotel La Georgina, sendero turístico, 2 900 m, 2003, *J. Kluge 1237* (USJ).

Arbeláez (1995) mentioned in the key of species that *Pteris albertiae* differs from *P. muricata* in having a completely smooth petiole (*vs.* petiole spinescent toward the base in *P. muricata*). Additionally, Arbeláez (1996) mentioned in the key of species that *P. albertiae* lacks scandent fronds (*vs.* scandent fronds in *P. muricata* and *P. longipetiolulata*).

Pteris longifolia L., *Sp. Pl.* 1074. 1753. Lectotype: Plumier, Descr. Pl. Amér. t. 18. 1693; Lectotype designated by Proctor, Fl. Lesser Antill. 2: 141. 1977.

Distribution. Southern **United States** (Florida to Texas) to **Honduras**, **Costa Rica**, **Bahamas, Granada, Lesser Antilles, Venezuela, Trinidad, and Brazil** (Prado and Windisch 2000, Mickel and Smith 2004), at 50-1 900 m. In Costa Rica known only from the population growing on limestone walls in road cut of Fila de Cal at 400-600 m.

Material of new distribution. **Costa Rica**. Puntarenas: Corredores, dist. Corredor, Fila de Cal, 08°40'44" N, 82°56'14" W, 583 m, 8 Jul 2011, *J. Chaves y F. Oviedo 165* (HLDG, CR); Corredores, Corredor, Fila de Cal, 08°40'44" N, 82°56'13" W, 576 m, 4 Nov 2012, *J. Chaves et al. 312* (HLDG, CR); Fila Cruces (Fila de Cal), carretera de Agua Buena a Ciudad Neily, orillas de la carretera, 08°41'35" N, 82°56'30" W, 600 m, 10 Nov 2007, *A. Rojas y W. Alvarado 8148* (CR, MO, USJ).

This species could be confused with the Asian *Pteris vittata* L., but differs from it by articulate pinnae (*vs.* non-articulate), pinnae base conspicuously auriculate on both sides (*vs.* slightly auriculate), 32-70 pinnae pairs (*vs.* 11-22), erose indusia (*vs.* entire), terminal pinna similar in length to lateral pinnae (*vs.* longer than lateral pinnae) (Moran, 1995; Mickel and Smith, 2004).

Pteris longipetiolulata Lellinger, Proc. Biol. Soc. Wash. 89: 703. 1977. Type: Colombia, Chocó, 2 km E of San José del Palmar, 1 550-1 650 m, 26 Mar 1971, *D. Lellinger y E. de la Sota 739* (Holotype: US!; Isotype: COL, CR!, HUA, LP).

Distribution. **Costa Rica, Panama, Colombia, Ecuador, Peru**, **Bolivia,** and **Venezuela** at (1 150-) 1 700-2 400 (-3 200) m. In montane humid forest.

Material of new distribution. **Costa Rica**. Cartago: Paraíso, Valle del Reventazón, mirador ecológico Monte Sky, 9°44'40" N, 83°50" W, 1 700-2 000 m, 23 Sep 1995, *A. Rojas et al. 2519* (CR, INB). San José: Escazú, San Antonio, zona protectora Cerros de Escazú, Pico Blanco, 9°53'45" N, 84°08'45" W, 2 100 m, 11 Nov 2004, *A. Rojas et al. 6253* (CR, MO). **Panama**. Chiriquí: 0.8 km up the main road from the center of the town of Cerro Punta, then 1.2 km SW along side road, on the ridge beyond end of the road, ca. 2 100-2 300 m, 29 Jun 1975, *D. Lellinger et al. 1958* (CR, US).

In the Tropicos database there are also specimens recorded from Peru (L. *Mellado 3022*, HUT, MO, USM, det.: A. R. Smith (UC, 2008), Bolivia (*A. Fay y L. Fay 2901*, MO, det.: J. Prado, 2006; *A. Fuentes et al. 10611*, BOLV, LPB, MO, UC, USZ, det.: A. R. Smith (UC, 2007); *I. Jiménez 1135*, LPB, det.: J. Prado, 2003; *I. Jiménez et al. 2822,* LPB, MO, UC, det.: A. R. Smith (UC, 2007); *J. Krach 8701*, MO, det.: J. Prado, 2006), and Venezuela (A. Alston 5263, MO, det.: R. C. Moran, 1989) (Tropicos, 2013a).

Arbeláez (1995) segregated 2 new species in the *P. muricata* complex and restricted the distribution of *P. longipetiolulata* to Colombia and Ecuador. Here it is recorded from other countries in the Neotropics.

Pteris muricatopedata Arbeláez, Brittonia 47 (2): 175. 1995. Type: Colombia, Antioquia, Mun. de Sonsón, Carretera Sonsón-Los Medios, 5°41' N, 75°21' W, 2 420 m, 8 Jul 1987, *A. Arbeláez et al. 120* (Holotype: HUA, not seen; Isotypes: COL, NY!).

Distribution. **Mexico, Guatemala, Nicaragua, Costa Rica, Panama, Colombia, Ecuador, Peru,** and **Bolivia** at 1 300-3 500 m.

Material of new distribution. **Mexico.** Chiapas: volcán Tacaná, 15°06'00" N, 92°05'24" W, 1 600-2 400 m, 19 Jun 1985, *E. Martínez 13221* (MEXU, MO); Mun. Unión de Juárez, en el volcán Tacaná, por el camino de Talquián a la cima del volcán, por la línea divisoria con Guatemala, 1 700-2 200 m, 4 Feb 1987, *E. Martínez et al. 19435* (MEXU). Oaxaca: municipio San Jerónimo Coatlán, distrito Miahuatlán, La Neblina, 17 km al SW de San Jerónimo Coatlán, brecha a Piedra Larga, 16°11' N, 96°56' W, 2020 m, 19 Mar 1988, *A. Campos y R. Torres 1577* (MEXU).

Moran (1995) mentioned that in *Pteris muricata* recorded from Chiapas, Guatemala, Nicaragua, Costa Rica, and Panama, the spine length in the axis is markedly reduced in comparison with that of plants from South America. The author also mentioned that *P. muricata* presents variations in the degree of blade dissection. The information provided by Moran (1995) is interpreted as an indication that the taxon is in reality a species complex, later segregated by Arbeláez (1995, 1996) in the species previously mentioned.

In the Tropicos database there are also specimens identified as *P. muricata* from Mexico (*D. Breedlove 34687*, MO, det.: R. C. Moran, 1995) and Guatemala (*P. Standley 83723*, F, det.: R. C. Moran, 1995) (Tropicos, 2013b).

Mickel and Smith (2004) recorded *Pteris muricata* Hook. from Mexico, Guatemala, and Nicaragua, but apparently the material from this distributional area

corresponds to *P. muricatopedata*, because Mickel and Beitel (1988), Mickel and Smith (2004), and Gómez and Arbeláez (2009) described *P. muricata* as having a pedate-pinnate blade and Moran (1995) mentioned that *P. muricata* has a tripartite blade (= pedate-pinnate), a character absent in *P. muricata* as defined by Arbeláez (1995, 1996). Also, the specimen *E. Martínez 13221* (MEXU, MO) was examined and its collection corresponds to the second species. Additionally, all of the specimens of *P. muricata* previously recorded from Costa Rica and Panama are either *P. muricatopedata* or *P. longipetiolulata*. For this reason, *P. muricata* is probably present only in South America. As indicated by Arbeláez (1995), *P. muricata* has scandent leaves with pinnate blade architecture, the abaxial side of the costa is slightly muricate with very short projections, and the petioles are spinescent (e.g., *M. Grant 10832*, CR); furthermore, *P. muricatopedata* has no scandent blade with pedate-pinnate architecture and muricate stipe and rachis (e.g., *E. Martínez 13221* (MEXU, MO).

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